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ABSTRACT

Interactional processes that lead to individual differences in children's communication styles and peer competence were explored in an examination of discourse and communication patterns used in parent-child and child-child interaction. Subjects were 38 children of 29-64 months in full-time day care and their mothers. Data was gathered through videotapes of mother-child interaction and peer interaction. Conversational scaffolding behavior and various aspects of discourse were measured. Findings indicated that full-time child care in day care centers during the first year of life is associated with patterns of communication that are related to low social competence in preschool-age children. The children in day care centers were more likely than the other children to use a vague and unfocused style of directing initiations to peers; noncontingent responses to the requests, suggestions, and demands of others; and a style of turn-taking that consisted of irrelevant comments that disrupted discourse. The pattern of noncontingent responding and irrelevant initiations was evident in children's conversations with their mothers and peers, and in mothers' conversations with their children. About 40 references are cited. Guidelines for coding data in terms of discourse codes and conversational scaffolding are appended. (RH)

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The Effects of Early Group Day care on the Development of Communication Skills Related to Social Competence

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RUNNING HEAD: Day Care Effects on Communication

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The Effects of Early Group Day care on the Development of Communication Skills Related to Social Competence

Although communication is the foundation of social interaction and the means through which people initiate and maintain social relationships, until recently little has been known about the role of communicative discourse skills in peer relations during the preschool years, the time when children first become capable of sustained peer interaction (Holmberg, 1980). In the few studies that have examined peer interaction skills longitudinally, subjects have been school-aged children (cf., Dodge, 1983). Because the roots of peer interactional competence in early childhood remain unclear, studies of the early development of social interaction skills are needed.

Children's first social relationships and interactions have traditionally taken place within the family. Thus, family interactions and family relationships should have a critical impact on children's developing peer interaction skills. However, for a growing body of children the greater portion of their daily social interaction is outside of the family and for many of these children, interactions occur not with consistent and attentive adults but with a changing and, in some cases, inattentive series of adults. The attachment literature has demonstrated that children who were more securely attached to a consistent caregiver as infants were found to be more competent in peer interactions as preschoolers (Pastor, 1981; Waters, Wippman, & Sroufe, 1979). This same body of literature as been somewhat less clear on the effects of early out-of-home care on young children.

The issue of potential effects of child care on developing children was first raised in relation to early parent-child attachment by Blehar (1974). Although her findings were not replicated, a fact which led to the currently held consensus among reviewers of the day-care literature that substitute-care experiences initiated after 24 months of age have no measurable effects on the quality of the child-mother attachment relationship (e.g., Clarke-Stewart & Fein, 1983; Rutter, 1981), studies of infants starting day-care during the first year of life have not yielded similar results (Vaughn, Gove, and Egeland, 1980).

More recent investigations in which the reunion behavior and attachment security of infants with and without day care experience in the first year of life have been compared, have found extensive nonmaternal care experience to be associated with increased avoidance and insecurity in the mother-child relationship (Jacobsen & Wille, 1984; Owen & Cox, 1989; Schwartz, 1983; Vaughn, Gove, & Egeland, 1980; Wille & Jacobsen, 1984). There is a growing body of literature suggesting that extensive nonmaternal care initiated in the first year of life may be associated with patterns of attachment that are commonly regarded as less secure (Belsky & Rovine, 1988; Gamble & Zigler, 1986). However, not all findings regarding conditions likely to heighten or reduce risk to attachment are consistent across studies. Several investigations have failed to document any association between out-of-home (nonmaternal) care in the first year and insecure attachment (Brookhart & Hart, 1976; Burchinal & Bryant, 1986; Chase-Lansdale & Owen, 1988).

These somewhat equivocal findings in relation to attachment and early out-of-home care may indicate that measures of attachment *per se* are too global to identify the specific aspects of parent-child behavior that lead to more competent social relations and social behavior later in life. Some investigators have suggested that using less global constructs to extend the attachment literature may demonstrate the particular processes in parent-child relationships that lead to positive outcomes in peer relationships (Eckerman & Stein, 1982). More recent studies of attachment have examined the communicative behavior demonstrated in the Strange Situation (the measures most often used to assess attachment in infancy) itself. Grossmann, Grossmann, and Schwan (1986) found that attachment classifications were associated with specific communication behaviors on the part of the babies during the mother-baby episodes of the procedure. Securely attached babies were more likely than infants classified as avoidant to engage their mothers in "direct communication" (e.g., eye-contact, facial expression, vocalization) during interaction. Molecular analyses of mother-child and peer interaction may extend the findings of earlier investigations concerning quality of attachment and out-of-home childcare (Belsky & Steinberg, 1978) to include differences specifically related to the development of competent social interaction skills by examining communication patterns as the critical component of social behavior that varies as a

result of early differences in child care arrangements.

In attempting to examine communication patterns as a type of molecular analyses related to early parent-child interaction, it is important to note that one of the major insights derived from recent research in the development of language and communication skills has been that children are actively engaged in these processes from very early in life. Considerable research attention has been given recently to detailed analysis of interaction situations involving children. Parke, MacDonald, Beitel, & Bhavnagri (1988) observed mothers and fathers interacting with their preschool-aged children and correlated attributes of this interaction with the child's adaptation among peers, as noted by teachers. Competent boys had fathers who were physically playful and mothers who were verbally stimulating. Putallaz (1987) examined the relation between parenting variables and children's social behavior. She found that mothers who used positive verbal statements (e.g., polite requests and suggestions) and were less disagreeable and demanding had children who were more socially accepted as well as more positive and less abrasive in observed interactions with peers.

In a recent study investigating the potential causal relation of specific communication skills and social status among preschool age children (Black & Hazen, 1990), responsiveness and contributing to relevant conversation were found to be important to both the establishment and the maintenance of social status among peers. The communication of liked children was clear, responsive, and relevant to that of other children, suggesting that socially accepted children may provide a structure for conversation that allows cohesive social interaction to occur. This research suggests that early socialization experiences may play an important role in children's development of social interaction skills.

According to Vygotsky's theory, children develop higher-order skills (including communication, negotiation, and play skills) in social contexts in which more experienced members of society "scaffold" the activities children use so that they can attain a higher level of competence than is possible independently. This scaffolding process involves offering support, guidance, and assistance that match the cognitive level of the child and thus close the gap between

the requirements of the task and the skill level of the child learner. Research has shown that parents scaffold basic skills used in maintaining cohesive discourse by taking primary responsibility for sustaining interaction (Kaye & Charney, 1981). Children carry over discourse maintenance skills modeled in parent-child interactions to contexts of peer interactions, particularly those in which they are required to take more responsibility for maintaining the interaction (Garvey, 1986).

In the present study, interactional processes that lead to individual differences in communication style in children and in peer competence were explored by examining various discourse and communication patterns used in parent-child and child-child interaction. Because social interaction is not likely unless participants have some ability to maintain cohesive exchange, several aspects of discourse coherence were examined at the utterance level (e.g., getting a listener's attention -in order to assure potential receptivity on the part of the listener; responding contingently, and taking topically related turns). It was hypothesized that patterns of responsiveness and reciprocity found in adult-child interaction would be reflected in the communication skills of children with peers. Vygotsky (1978) suggested that children develop communication skills in the context of early interactions with parents who support and guide their interpersonal skills. It was predicted that when interactive skills are learned in contexts that fail to provide individual support and guidance, children would not develop clear patterns of responsiveness, reciprocity, and cohesive discourse. It was further hypothesized that day care experiences in infancy may serve to diminish parental impact on the development of communication patterns and thus would be predictive of a style of peer interaction and parent-child interaction that lacks key dimensions of interactive competence.

METHOD

Subjects

Subjects were 38 children, both male and female, ages 29 months to 64 months, and their mothers. The children were recruited from two full day child care centers that serve families from

a variety of middle-class socioeconomic backgrounds. The children were in one of three conditions related to their infant care experiences (i.e., type of care for more than four hours per day for more than 20 hours per week, beginning before the age of 6 months): (a) parental care at home (N=10); (b) nonparental/noncenter care (N=13); and, (c) center-based day care (N=15). Each of the three child care conditions included mother's whose type of employment ranged from clerical support positions to a variety of professional occupations (legal, medical, academic, and business occupations were represented at all levels). Because the study used a sample obtained in a post hoc fashion, the quality of the center care arrangements in infancy could only be judged retrospectively. This assessment was made based on the following criteria: First, subjects included children from the majority of available infant child care facilities in the area. Second, a short questionnaire asked parents how many different providers had been involved in the child's care and their own evaluation of the care (ranked from *very pleased* along five points to *very displeased*). In addition, the turn-over rate and education of teachers in centers that had provided infant care to subjects were obtained from two independent community sources. For each of the centers contacted, infant groups were staffed with one "head" teacher and at least one assistant for every eight children. For the five years that subjects would have been in care, the turn-over rate was approximately the same for all centers, 40% to 60% per year among head teachers and closer to 80% per year for assistant teachers. Anecdotal comments from center directors cite absenteeism rather than turn-over rate as potentially the major contributing factor to inconsistency in caregiver.

Teachers had a variety of educational backgrounds including teachers with graduate and undergraduate university degrees in Child Development with state teaching certification, university degrees in unrelated fields, technical college degrees in Child Development and other less related areas, as well as teachers with or below the 40-hour minimum state training requirement. The range of educational and training backgrounds existed across the centers. It was not possible to make any assessment of quality for day care providers in the nonparental/noncenter care group, however, communication with parents indicated that this type of care represented the widest variety of caregiving arrangements. Parents reported providers serving from one to six or more children

with providers offering care to both same-age and mixed-age groups. No difference existed between the mean age for entry into nonparental out-of-home day care and center day care (Mean age of entry = 3.29 months).

Procedures

Each mother was videotaped interacting with her child in a small playroom equipped with a variety of toys and props designed to elicit collaborative interaction and problem solving (e.g., legos, multi-level puzzles, and traditional housekeeping props). Interaction was videotaped for 25 minutes and then the mother was signaled to begin a clean-up period. The clean-up situation was included to provide an opportunity to observe oppositional behavior from the child and conflict resolution strategies from the mother. The entire observation session was approximately 30 minutes long.

Videotapes of children's peer interactions were made at their school with familiar peers. Children were grouped into same-sex triads with children who were neither their most- or least-favored peer. An experimenter brought two members of each triad (the Hosts) into a small room containing props designed to elicit social play (e.g., the same legos, multi-level puzzles and props used in the mother-child interaction along with furniture representing traditional housekeeping props). The children were told that they were free to play with anything in the room, and that the experimenter would return in ten minutes with another child. Their interactions were then videotaped. After 10 minutes, the third child (the Entry Child) was brought into the room, and the interaction of all three children was observed for 10 more minutes followed by a signal to begin a clean-up period. No adult was visibly present during any portion of the observation. The data presented here are from the 15-minute triadic interaction of peers and from the first 10 minutes and the clean-up period of the mother-child interactions.

Measures

Conversational Scaffolding Behavior

A code was adapted from Maslin (1987) to assess the extent to which mother's facilitated three aspects of their children's play:

Initial Recruitment - Recruitment attempts referred to any verbal or non-verbal behaviors that the parent used to initially engage the child in interaction. (e.g., call to the child, suggesting an activity, offering a toy.) Recruitment was scored as achieved when the child gave his or her attention to the mother or to her activities with objects and did not shift his or her attention for at least three conversational exchanges (following the discourse code used in this study - one cohesive episode).

Interaction Contract - the process of joint decision-making between scaffolder and child concerning the content and context of the interaction. Smooth negotiation of a contract involved a series of steps by the scaffolder (i.e., offering a general choice to the child concerning the content and/or context of the proposed interaction such as playing with the Legos versus the dishes); stating the "terms" of the contract that refer to specific actions and or plot line that the play will follow , for example, "Let's play with the Legos and build a tower"; and, asking for the child's consent to the contract. (At each step of the process, it is important that the scaffolder be alert to verbal and non-verbal signals from the child concerning his or her preferences for play. If the child indicates that a particular suggestion is not acceptable, an effective scaffolder will either offer an alternative or give the child an opportunity to have input into the decision, and will attempt to incorporate any indicated preference by the child, if possible.

Direction Maintenance - the scaffolder's ability to keep the child interested and engaged in the play interaction, once a contract or joint decision has been made. Several types of scaffolding behavior contribute to effective direction maintenance: ability to refocus or re-engage the child if his or her interest wanders, praise and encouragement given to the child, the scaffolder's enthusiasm for play, the degree of involvement, and the degree of continuity and coherence of the scenario offered by the scaffolder.

Discourse Measures

Data for each participating adult and child was coded separately using the coding systems described below. All available data for each subject was examined with these coding systems.

In order to assess comparable aspects of adult-child and child-child communication, measures used to code communication consisted of hierarchical codes that assessed the basic initiation and response moves characteristic of key dimensions of receptivity, reciprocity, and cohesive discourse in children and adults.

Coding conversational structure and process

Discourse structure. Initiations included any utterance which breaks continuity with the preceding discourse and predicts a response; any utterance that is predicted by and responds to a preceding utterance and simultaneously provides for the possibility of a further response; any utterance which continues or adds to a previous utterance within a turn and/ or which attempts to elicit a response following null or unsatisfactory responses. Responses included any utterance that is predicted by and responds to a preceding utterance (McTear, 1985). The coding systems were applied to these units. Responses which also served as further initiations were double-coded as initiation/responses. Initiations and responses were further categorized as they served a social function related to receptivity, reciprocity, and cohesive discourse using coding systems designed to measure negotiation strategies and communication skills used for collaborative interaction and conflict resolution.

Discourse processes. Episodes of collaborative interaction were coded in relation to the target-subject's (mother or child) discourse management. Code categories for specific strategies include: Suggestions and demands, extensions to and disruptions of the ongoing discourse, explanations used to provide information and facilitate the task, requests seeking information from another participant or seeking clarification of the initiations and responses from the interaction partner, and descriptions of one's own activity (self-referent versus group-oriented conversation). Conversations were additionally coded for general skills used in initiating and maintaining discourse (i.e., clarity of direction in conversation, contingency of responding, style of turn-taking, and topical-cohesion). It is these general skills that are of interest in the present study.

Coders were trained by the first author and were required to obtain kappa coefficients (Cohen, 1960) of greater than .85 for all code categories on two training tapes before beginning

the actual coding. Random segments of each videotaped session were selected for reliability testing with a total of 33% used for the reliability sample. Reliability coefficients were checked at remained at least .86 over the assessments required to complete the coding. Reliability for all code categories was assessed by comparing the coding of three independent coders (who were blind to the hypotheses as well as to the condition of early childcare) with that of the author who served as reliability checker.

Data Reduction and Analysis

Communication variables were reduced to composite variables that identified key dimensions of communication patterns. All scores were analyzed using proportions of the speaker's communication. Scores for contingent and noncontingent responses were measured as a proportion of the total responses required (responses were required for clearly directed suggestions, demands and requests); and relevant and irrelevant turns were measured as a proportion of the total number of turns taken by the speaker in the episode.

The scaffolding behavior of mothers was scored using the system described in the appendix. Each of the three code items could be scored as high (5 points), medium (3 points), or low (1 point). The scores for each of the three items were then combined to yield a scaffolding behavior score.

Three aspects of relevance and coherent communication were hypothesized to be related to condition of early child care and scaffolding behavior of the mother: (a) the extent to which the target child clearly directed his or her initiations in peer interaction; (b) the extent to which the target child and mother responded contingently to the requests, suggestions, and demands clearly directed to him or her both in the child's peer interaction session and in the mother-child session; and, (c) whether or not the target's turn-taking initiations provided extensions to or disruptions of the ongoing discourse both in the child's peer interaction session and in the mother-child session. Because all dependent variables were converted to proportions, which typically result in skewed distributions, they were subjected to arcsin transformations prior to analysis (Winer, 1971). Measures of direction, responsiveness, and cohesive interaction were subjected to a 3 (Condition

of infant child care) x 2 (Scaffolding behavior of Mother) multivariate analyses of variance (MANOVA).

RESULTS

Communication Differences Related to Condition of Early Child Care

The MANOVA revealed, as predicted, a significant multivariate main effect for condition of early child care, exact $F(20, 50) = 5.09$, $p < .03$. (All multivariate analyses of the F statistic were made according to the Hotellings criterion). Table 1 displays the mean proportions, standard deviations, and F ratios for the univariate analyses of each of the seven dependent variables compared by condition of early child care collapsed over age (preliminary analyses yielded no main effects or interactions for age of the child). (All tables display non-transformed proportions). Follow-up Duncan Multiple Range tests were performed on condition group means of the measures for which significant condition of early child care main effects were found. As shown in Table 1, children who were cared for in centers were most likely and children cared for at home were least likely to initiate in an unfocused, nondirected fashion when interacting with their peers. Children who were cared for in centers were more likely than home or nonparental/noncenter child care groups to use a noncontingent style of responding to their peers. They were also more likely to use initiations that were irrelevant to the ongoing topic and, thus, disruptive to coherent discourse than were either other group. The findings for mother-child communication were in a like direction. Mothers of children who participated in center-based child care were more likely than either other group to be noncontingent in their responses and to have a style of interactive communication with their children that was characterized by irrelevant turns that proved to be disruptive to coherent discourse. Children cared for in nonparental/noncenter style child care arrangements differed from those cared for at home by their mothers in the extent to which they used a relevant turn-taking style with their peers and with their mothers.

Insert Table 1 about here

Communication Differences Related to the Scaffolding Behavior of the Mother

The MANOVA revealed that children's communication style differed as a function of their mother's scaffolding behavior, exact $F(7, 26) = 5.22$, $p < .001$. Univariate analyses indicated that children whose mothers scored low on the scaffolding measure were more likely to use unfocused, nondirected initiations; more likely to be noncontingent in their responses to peers and to their mothers and more likely to have a style of turn-taking that was characterized by irrelevant turns. Likewise, mothers who scored low on the scaffolding measure were also likely to demonstrate more noncontingent responses and irrelevant turns than were mothers who scored high on the scaffolding measure. Chi Square analysis indicated that children in the home care condition were less likely to have mothers who demonstrated low scores in scaffolding than were children in either other group. However, the MANOVA did not indicate an interaction of condition of early child care and maternal scaffolding behavior in relation to the communication skills measured.

Insert Table 2 about here

DISCUSSION

The results of this study indicate that full-time child care in day care centers during the first year of life is associated with patterns of communication that have been found to be related to low social competence in preschool age children (Black & Hazen, 1990; Hazen & Black, 1989). Children who were cared for in infancy in full-day child care centers differed from children cared for in less formal noncenter day care settings and with those

who were cared for at home by a parent. The communication of children cared for in day care centers was more likely to be characterized by a vague and unfocused style of directing initiations to peers; noncontingent responses to the requests, suggestions and demands of others; and a style of turn-taking that consisted of irrelevant comments that served to disrupt ongoing discourse. The pattern of noncontingent responding and irrelevant initiations was evident in children's conversations with their mothers as well as their conversations with their peers. It was additionally evident in the mothers' conversation with their children.

A possible explanation for these findings may be found in the fact that coherent discourse has many of the same defining characteristics as does interactional synchrony between mothers and infants as described by Isabella, Belsky, and von Eye (1989). Each process is characterized by interaction that appears to be reciprocal and mutually rewarding and that often carries with it the suggestion that the other participant is available, responsive, and, at least in the case of parent-child interaction, trustworthy. Given the high ratio of infant to caregiver in day care centers (typically 4:1 or 3:1), it may be that the type of child-adult communication that must occur in order to lay the foundation for interactional competence cannot occur in the context of center-based child care. Isabella et al. found that babies who would eventually develop secure relationships had mothers who were disproportionately likely to respond to their vocal signals. These findings replicate those of Belsky, Taylor, & Rovine (1984) who also reported that mothers of secure babies were more responsive to their infants' vocalizations and distress signals than mothers of insecure infants. Caregivers charged to respond to the vocalizations of three or four infants for extended periods of time may, of necessity, be required to selectively discount certain infant signals in order to respond to clearer or louder signals from other infants in the group. In this case, children may fail to develop a standardized model of communication in infancy that allows for competent behavior in social interaction (i.e., that coherent discourse requires engagement of the participants and is facilitated by clearly directed initiations; that requests are due a response; and that social cohesion is the result of relevant turns in

communication and in contrast, that irrelevant initiations lead to dispersive social interaction).

The fact that findings related to out-of-home care in infancy are not consistent across the literature may actually reflect the greater issue of determining the direction of influence or influences in children's development that contribute to their ability to experience competent peer relationships. One approach to this issue has been to argue that children develop peer interaction skills through interaction with peers (Hartup, 1978, 1979; Rubin, 1980). However, more recent interest has been directed to experiences in the family as possible influences on the development of peer interaction skills (Finnie & Russell, 1988; Hops & Finch, 1985; Lamb, 1981; Parke, MacDonald, Beitel, & Bhavnagri, 1988; Putallaz, 1987; Rubin & Sloman, 1984).

Following this second approach, infant caregivers, parental or nonparental, would play a critical role in the child's development of interactional competence. If this is the case, it may be that the context of group oriented activity found in center-based child care, does not readily allow for the type of infant-caregiver interaction that is needed to facilitate this type of development.

The findings of this study related to the nonparental, noncenter type of out-of-home care must be interpreted with caution. Although it is clear from our results that children in this group are less likely to use coherent turn-taking strategies than are children cared for at home, the differences within this group appear to be larger than within the other two groups (see the standard deviation scores for irrelevant turn-taking both in parent-child interaction and in peer interaction). More research is needed to carefully define groups that participate in types of care that are neither parental in-home or center-based care. Furthermore, it may be that the factor that this type of care has in common is that caregiver turn-over rate is still often quite high.

The scaffolding behavior of mothers emerged as an important factor in the extent to which children in any group demonstrated competent social interaction skills. Children

whose mothers scored high on the scaffolding measure were less likely to be vague in directing their conversation with their peers. This may, in a bidirectional fashion, be related to the scaffolding score itself. Scaffolding included three separate scores of mother's behavior: initial engagement by recruiting the child's interest (certainly related to and facilitated by, the ability of mother and child to clearly direct communication to each other); completing a contract of agreement to engage in a specific task; and the mother's ability to maintain the child's focus and enthusiasm on the selected task (also easily influenced by the presence or absence of a pattern of irrelevant turn-taking in the discourse). The Child's interactive competence may well have made the scaffolding task easier for these mothers. Likewise, mothers who were less adept at providing scaffolding in the interaction may have faced a more formidable task because their interaction skills and those of the child made engagement, agreement, and maintenance far more difficult. It would be speculative as a result of these limited observations to suppose that the scaffolding behavior preceded the communication style or vice versa.

In this light, it is of interest that the communication patterns of mothers differed in the same direction as did those of their children according to the condition of child care. However, again, interpreting these findings as causal would be erroneous. Interaction involves at least two participants and consists of the jointly constructed discourse of the dyad or triad. Therefore, the interpretation of influence in these interactions must be made using some criteria to assess leadership roles in the communication. This did not take place in this study, therefore, it is not possible to make a determination regarding the mothers' communication skills. Children were observed in two types of interaction, thus, their patterns can be determined based on a comparative analysis of these two observations. Children cared for in centers were clearly less competent communicators in both types of settings.

Because no significant interactions were found for scaffolding behavior and condition of child care, the interpretation of mothers' less competent communication demonstrated by each measure must be made as two distinct main effects and not as an interaction. It may be that

mothers of children cared for out of the home, are less dominant in their interactions with their children and therefore the child's rather than the mother's style of communication sets the tone for the discourse. Furthermore, the parent's responses to our questionnaire often contained comments and questions that sometimes stated quite painfully the guilt they felt about their child care arrangements (these statements were, however, always made in conjunction with a "pleased" or "very pleased" evaluation of the care selected). Some, as yet unexplained characteristic in the mother like guilt, might account for poor scaffolding behavior as well as allowing the child's less than coherent discourse style to dominate the interaction. This explanation is supported by the findings of Pettit and Bates (1989) that, in families where mothers perceive their children as having many problem behaviors, the mothers do not engage in overt control behaviors over the child. These authors even suggest that mothers may "turn a cold shoulder" to behaviors that they see as problematic. This interpretation would account for the quite low scores on enthusiasm and attempts to focus the interaction found in the present study as part of the composite scaffolding score for mothers of less than competent communicators.

In this study we sought to examine the relation of quality of interaction, that is, cohesive versus dispersive styles of discourse to the type of child care experienced in infancy. The findings reported here suggest that interactional competence may be best facilitated by at-home parental care and may be most at-risk as a result of full time care in a center in the first year of life. This study has, however, possibly raised more questions than it has answered. It may be of importance to note that the only condition of child care in which children experienced a consistent caregiver for the first year of life was the home care condition. If consistency of caregiver in infancy is the key to later competence in social interaction, then our findings should be interpreted as discriminating between the most and the least likely conditions in which children can experience consistent caregiving in infancy not necessarily the quality *per se* of the different conditions of child care.

Future studies should examine several issues in more detail. A comparison of mothers' communication with their own peers might make the findings related to mothers' communication style more readily interpretable. Measures need to be devised whereby direction of influence may

be assessed in mother-child interaction as well as peer interaction and sequential analysis of conversation may provide insight into the relation of communication patterns of individual participants to the style or pattern of communication demonstrated by dyads and triads as a whole in social interaction. However, these findings do indicate that issues related to infant caregiving arrangements may need to be discussed both in relation to the type of care provided as well as the public policy issues surrounding parental availability to young children.

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Table 1

Mean Proportions and Standard Deviations of Communication Process Skills as a Function of Early Child Care Experience

	Early Child Care Experience			
	Home Care	Noncenter Care	Center Day care	F(2,36)
Communication Process Skills:				
Peer Interaction:				
Nondirected Communication	$.29_b$ (.14)	$.48_{ab}$(.25)	$.63_a$ (.25)	6.40**
Noncontingent Responding	$.02_b$ (.03)	$.06_b$ (.05)	$.13_a$ (.11)	6.56**
Irrelevant Turn-taking	$.14_c$ (.14)	$.37_b$ (.31)	$.69_a$ (.18)	18.37***
Parent-Child Interaction:				
Child:				
Noncontingent Responding	$.13_b$ (.12)	$.16_b$ (.10)	$.28_a$ (.19)	3.51*
Irrelevant Turn-taking	$.08_c$ (.06)	$.22_b$ (.20)	$.34_a$ (.10)	10.17***
Mother:				
Noncontingent Responding	$.007_b$ (.01)	$.02_b$ (.01)	$.06_a$ (.04)	8.31***
Irrelevant Turn-taking	$.09_c$ (.06)	$.18_b$ (.09)	$.35_a$ (.10)	26.32***

Note: Means with the same subscript (within rows) are not significantly different from each other according to Duncan Multiple Range tests ($p < .05$).

* $p < .05$
** $p < .01$
*** $p < .001$

Table 2

Mean Proportions and Standard Deviations of Communication Process Skills as a Function of Mother's Scaffolding Behavior

	Mother's Scaffolding Behavior		
	High Scaffolding	Low Scaffolding	F(1,37)
Communication Process Skills:			
Peer Interaction:			
Nondirected Communication	.40 (.22)	.57 (.27)	1.78
Noncontingent Responding	.03 (.03)	.13 (.10)	15.33**
Irrelevant Turn-taking	.25 (.27)	.63 (.23)	14.57**
Parent-Child Interaction:			
Child:			
Noncontingent Responding	.13 (.12)	.26 (.16)	4.53*
Irrelevant Turn-taking	.11 (.10)	.34 (.15)	21.63**
Mother:			
Noncontingent Responding	.01 (.01)	.06 (.04)	13.70**
Irrelevant Turn-taking	.14 (.10)	.30 (.12)	21.50**

* $p < .05$
** $p < .001$

APPENDIX

Discourse Codes

General Communication Skills

Basic Moves Assessing Discourse Structure and Function

Initiations and responses are to be coded first at the utterance level. Utterances include: initiation (simple), an utterance which breaks continuity with the preceding discourse and predicts a response; response (simple), an utterance which is predicted by and responds to a preceding utterance; response/initiation, an utterance which is predicted by and responds to a preceding utterance, and which simultaneously predicts a further response; continuation, an utterance which continues or adds to a previous utterance within a turn; continuation/initiation, an utterance which continues or adds to a previous utterance in a turn, and which provides for the possibility of a further response; and, reinitiation, an utterance which attempts to elicit a response following null or unsatisfactory responses. Initiations and responses were further categorized as they serve a social function related to receptivity, reciprocity, and cohesive discourse. Receptivity was examined at the basic level by coding strategies used to direct conversation to others:

Non-verbal	Verbal
1. Pointing	1. Use other's name
2. Making eye contact	2. Greeting word
3. Touching hearer	3. Frame word (e.g., "well", "Now")
4. Showing or giving something to hearer	4. Prosodic devices (whining, screaming)

Direction Code:

The clarity with which the target directed conversation to the addressee was examined as one of the following:

Clearly Directed - target's initiations are clearly directed to one or more other participants by using a name or names, making eye contact, making physical contact, or by responding to an initiation offered by the other.

Nondirected - coder cannot determine the intended recipient of the target's initiation.

Response Code:

Reciprocity was examined by coding the extent to which responses support the discourse expectations of a preceding initiation. Responses were categorized in relation to the predictions of the initiation as: *contingent* or *noncontingent* (either a nonsequiter or ignoring a clearly directed initiation that should predict a response). Reciprocity was also coded by examining initiation moves for the appropriate performance of requests (e.g., that the request is sensible, that the speaker of the request does not know the answer, that the speaker has the right to ask, that the addressee might know the answer, and that the addressee is obliged to give an answer).

Specific Communication Skills

Basic Moves Addressing Discourse Process

Coherent Discourse Code:

Coherent discourse was examined at two levels: 1) adjacent utterances were coded for strategies for such as - *matching adjacency pairs* (this is a common device in young children which gives evidence of attempts at cohesion), *back-channel feedback* (head nods, um-uhs, hmms that addressees send to speakers during lengthy turns-at-speaking), *turnabouts* (these can be either a rejection with alternative or reason, or an acceptance in which the speaker accepts (agrees to the idea of another) and then extends or continues that idea with a further initiation); and 2) at the level of conversational exchange - a) *topically related turn-taking* (e.g., turn-taking with shared thematic content) and, b) topical cohesiveness in longer segments of discourse or nonverbal interaction will be analyzed by dividing the interaction into topically related, chained segments (*Topically-related*

exchanges). This was done by bracketing related segments. Scores were derived for each individual by first counting the proportion of the individual's utterances or acts that were included in cohesive segments, and then obtaining a measure of the average length of cohesive exchanges in which that individual participated.

Collaborative Interaction - Negotiation Code:

Demands - A statement or command announcing a topic or choice of activity. This code item does not include a stated or implied choice for the other participants. (e.g., "Now we are gonna play blocks."; "OK, we are gonna pretend we are going to the store." "Stop that now.")

Suggestions - A suggestion or request that a specific new topic or idea be considered. This code item offers a choice to the other participants. (e.g., "Do you wanna play circus?" or "Shall we do this now?")

Simple Agree or Reject - A simple acceptance or rejection of a strong or weak directive. (e.g., DAD: "Do you want to put this puzzle together?" JACK: "Yes." Or among children, "MARTY: "Ely, you are gonna be the baby." ELY: "No I am not."; ANNIE: "Let's pretend we are going to the mountains." EMILY: "Don't say that.")

Agree to Idea and Extend - Following an initiation (including double-coded response/initiations) a child or adult either explicitly or implicitly accepts the assignment or suggestion and additionally offers extending material to the topic. (e.g., the responses of Mom to child: CHILD: "Mommy, you can put the red ones here." MOM: "Yes, and then we'll find all the green ones." or those of George, Jenny, and Mark, JOE: "We're can play robbers, OK?" GEORGE: "Yeah, and we can pretend we are gonna take all these jewels."; AMY: "We are gonna pretend our babies are sick." JENNY: "And they got a very high fever."; JOHN: "I am the robber keeping the jewels." MARK: "Yeah, and I will be the cops, OK?") In each case the responder extends the material offered by the initiator.

Explain Ongoing Activity - A statement providing information to a participant about the ongoing activity. A parent may explain the task at hand or interpret rules. This can also be at the time in peer interaction when a new child enters the area or during play among participants when the

play is ongoing as when one child has not been actively engaged with the other two for some time and rejoins their play. This may not, however, serve as a suggestion of a new topic. (e.g., MOM: "See, this little part fits here." or among peers, "Hi Mary, these are our purses and we are going to the store." said to an Entry Child)

Seek Clarification - A request soliciting information about an ongoing activity, previous conversation, or newly offered information. (e.g., "Do you mean to put this here?" ; "What are we doing now?"; or among peers in pretend play "Why are our babies sick?")

Self referent conversation - A statement about one's own actions, this includes the pronoun "I" and consists of descriptions of actions in pretense. (e.g., "I am stealing these jewels."; "I am having my lunch and then going to sleep."; "I am going to the store and then I am giving you these.")

Conversational Scaffolding

These items are adapted from Maslin (1987).

Initial Recruitment - Recruitment attempts refer to any verbal or non-verbal behaviors that the parent uses to initially engage the child in interaction. (e.g., call to the child, suggesting an activity, offering a toy.) Recruitment has been achieved when the child gives his or her attention to the parent or to her activities with objects and does not shift his or her attention for at least one complete cohesive episode of three relevant conversational exchanges.

Score 1:

Recruitment of the child's interest and attention is difficult. The child shows considerable delay in attending to maternal demonstrations or others attempts to recruit. If some attention is given to the parent's initial recruitment attempts, it takes the form of rejection or interference with attempts to recruit (e.g., knocking down or kicking away toys offered by the parent).

Score 3:

Recruitment attempts are moderately successful, however, recruitment is not immediate. The child shows some hesitancy to engage, perhaps giving the parent only fleeting attention initially. The child delays for at least several seconds before actually approaching the parent or becoming engaged with the designated toys. The parent must make several more recruitment attempts before the child is fully engaged.

Score 5:

Recruitment is easy and quickly achieved. The child gives the parent his or her attention immediately and becomes engaged with the toys soon after. He or she remains engaged for more than a brief time.

Interaction Contract

The interaction contract refers to the process of joint decision-making between scaffolder and child concerning the content and context of the interaction. Smooth negotiation of a contract involves a series of steps by the scaffolder (referred to as a "funnel" process):

1. offering a general choice to the child concerning the content and/or context of the proposed interaction (e.g., playing with the Legos vs the dishes),
2. stating the specific "terms" of the contract that refer to the specific actions and or plot line that the play will follow (e.g., "Let's play with the Legos and build a tower),
3. asking for the child's consent, that can be indicated verbally or non-verbally by the child.

At each step of the process, it is important that the scaffolder be alert to verbal and non-verbal signals from the child concerning his or her preferences for play. If the child indicates that a particular suggestion is not acceptable, an effective scaffolder either offers an alternative or gives the child an opportunity to have input into the decision, and attempts to incorporate any indicated preference by the child, if possible.

Score 1:

Negotiation of a joint contract is minimal, if it occurs at all. Failure to negotiate a joint contract can take one of two forms:

1. The parent is directive and controlling in his or her attempts to engage the child and determine the scenario. The parent does not offer the child a choice of materials, theme, topic or role in the interaction. The child has little or no opportunity to negotiate a contract or to have input into the decision about what will occur in the interaction.
2. The parent is vague and unspecific about what form the play might take or what scenario might be followed. The parent offers no conceptual structure and no terms or description of what the joint interaction will entail. The parent may simply ask a general question (e.g., "What do you want to play with?") or may state no specifics.

In both cases the child is <u>not</u> guided through the process of eliminating possibilities. This scenario may also include offering a succession of activities with few or no accompanying specifics or structure.

Score 3:

Some evidence of negotiation of a joint contract exists. The parent attempts to present a hierarchy of terms for participation in the interaction but does so in a somewhat disorganized, fragmented, or incomplete manner. (e.g., the parent may make an overall statement of direction, although vague, and may give the child some opportunity to respond. However, the terms of the contract are not fully stated nor does the parent give the child a clear opportunity to participate in choosing the activity.

If the child indicates that the suggested activity is not acceptable, the parent does not readily modify the proposal in response to the child's reaction. The parent either reasserts his or her choice and pursues it without gaining consent from the child or proposes a second alternative, but it too tends to be either too vague or too specific, and again the child

is not able to effectively participate in the decision-making process.

The parent shows only moderate evidence of willingness or ability to include the child in the choice and to accommodate his or her wishes.

Score 5:

A joint contract between parent and child is clearly and smoothly negotiated. The parent offers the terms of the contract using a "funnel" process. Suggestions are offered in a hierarchy, and are tailored or modified to incorporate child interests and preferences where appropriate. The parent's final suggestion or direction is one that is concrete and completable by the child, so that the child is smoothly drawn into actual interaction.

During the negotiation, the parent looks to the child for indications of consent that may be verbal, gestural, or implicit. The parent is very responsive to the child's indications of consent or non-consent, attempting to modify the proposed scenario if the child rejects his or her suggestion.

In general, the parent gives the child more than one opportunity to have input into the negotiation process, he or she clearly states the terms of the contract that is being offered, the parent is sensitive to the child's indications of preferences or desires, and readily modifies his or her suggestions to try to accommodate the child's input.

Direction Maintenance

Direction maintenance refers to the scaffolder's ability to keep the child interested and engaged in the play interaction, once a contract or joint decision has been made. Several types of scaffolding behavior contribute to effective direction maintenance: ability to refocus or re-engage the child if his or her interest wanders, praise and encouragement given to the child, the scaffolder's enthusiasm for play and degree of involvement, and the degree of continuity and the coherence of the scenario offered by the scaffolder.

Score 1:

The parent's ability to keep the child interested and engaged in interaction is minimal. The parent is not able to keep the child involved for more than brief periods of

time, and the child spends the majority of the session either uninvolved with toys or playing independently. (This latter may look like parallel play.) The parent rarely uses encouragement or praise in order to maintain the child's enthusiasm.

The parent's attempts to re-engage or refocus the child are generally unsuccessful, or the parent makes very few attempts to refocus, even when needed. The parent is rarely able to draw the child's attention back to the interaction after interest has wandered.

The parent's own enthusiasm for the interaction may be quite low and he or she may give up trying to interest the child and allow him or her to pursue independent interests. The parent may show signs of boredom or disinterest. The parent typically shows some disorganization or incoherence in relation to the theme or topic, and may switch topics frequently and in an abrupt manner, losing the child's attention in the process.

Score 3:

The parent's ability to maintain the child's interest and enthusiasm for the play is moderate. The parent is able to keep the child engaged in play interaction for at least half of the session. Either the child is unengaged for part of the session or is pursuing independent interests. If the child is engaged throughout the session, then the child's enthusiasm is low or luke-warm.

The parent uses praise and encouragement sometimes, but neither is used very frequently nor is it very enthusiastic. The parent has some success refocusing the child on a new theme or drawing his or her attention back to play.

The parent's own enthusiasm for the interaction tends to be only moderate and may wane at times. The parent presents a topic that may be somewhat disorganized or awkward, however, it is not characterized by abrupt switches or fragmentation. The child is able to follow the topic suggestion and to participate to at least a moderate degree.

Score 5:

The parent's ability to maintain the child's interest and enthusiasm for the interaction is excellent. The parent is able to keep the child engaged and actively involved in play

throughout the session, and may incorporate the child's suggestions to help maintain high child involvement. The parent tends to use praise and encouragement regularly to maintain child interest. Child enthusiasm may be quite high.

The parent's attempts to refocus and re-engage, if needed, are quite effective. The parents own enthusiasm for the interaction is high and he or she remains involved in the interaction throughout the session. Themes and topic are coherent and transitions to new themes, topics, or toys are smooth and easy to follow.